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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/524,508	12/22/2005	Georges Belfort	18001/5044	6237

7590 11/05/2008  
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EXAMINER
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DRODGE, JOSEPH W

ART UNIT	PAPER NUMBER
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1797

MAIL DATE	DELIVERY MODE
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11/05/2008

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/524,508	<b>Applicant(s)</b> BELFORT ET AL.	
	<b>Examiner</b> Joseph W. Drodge	<b>Art Unit</b> 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-79 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-79 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. ____.                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>04/23/2008</u> .  | 6) <input type="checkbox"/> Other: ____.                          |

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35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the claimed invention is directed to non-statutory subject matter. Independent claims 1,30 and 40 are not directed to a statutory category of invention. The subject matter of the claims recite a processes concerning mental steps, steps of a mathematical algorithm and/or steps of entering data into a calculator or computer. From *In re Bernard L. Bilski* (Fed Cir, 2007-1130, 10/30/2008) it was ruled that a claimed process is patent-eligible under 101 if (1) it is tied to a particular machine or apparatus, or (2) it transforms a particular article into a different state or thing.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

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claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-79 are rejected under 35 U.S.C. 103(a) as obvious over the Romero et al Journal of Membrane Sciences publication in view of the Dharmappa et al Journal of Membrane Sciences publication.

For independent claims 1,30 and 40, Romero et al disclose a crossflow membrane filtration of particles process and a poly-disperse suspension (pages 157-159,163) and disclose or suggest determination of the following: permeation flux (page 168,180), target molecule yield (page 183), viscosity (top of page 163), packing density (page 167 and 174-175), selection of smallest particle size (page 178 and figures 10 and 11), selection of largest particle size giving relative permeation flux rates (bottom of page 180), packing densities of smallest particles and larger particles (page 167 and 174-175), and estimated yield/sieving coefficient (page 183, etc.).

The claims all differ in requiring that packing densities and/or packing volume be determined for all or each of the particle sizes present. However Dharmappa et al teach such determination concerning particle size distributions at pages 180,182 and 183 . It would have been obvious to one of ordinary skill in the art to have utilized such calculation(s) in the process of Romero, to allow determination of yield and passage of multiple products of the feed flow mixture corresponding to different particles of intermediate or different particle size.

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Claim 1 also requires determination of back-transport velocity although Romero discusses back diffusion. Dharmappa teaches such determination at pages (especially pages 176-177). Such further calculation would enable correction of determination of apparent flux to reflect actual , more accurate and corrected overall flux rates.

For various dependent claims: Romero further suggests determination of factors related to particle shape and volume fraction, inertial lift (pg. 158), particle diffusion (pg 158), use of Boltzmann constant, determination of a wide range of particle sizes, particle size radius (section 2.1), Brownian diffusion (pg. 158) , sieving coefficient, ,calculations related to diafiltration such as cake factors , shear rates (figure 1 and pg 160), repeating of various calculations and assumptions, stagnation film formation.

For various dependent claims: Dharmappa further suggests determination of factors related to particle shape and volume fraction, inertial lift, particle diffusion, use of Boltzmann constant, determination of a wide range of particle sizes, particle size radius, Brownian diffusion properties, pore radius or diameter, sieving coefficient, ,calculations related to diafiltration such as cake factors, shear rates, repeating of various calculations and assumptions (Table 2), stagnation film formation. See especially the discussion starting at page 180 concerning particle size distribution at the foulant layer.

For claims 26-29, 39 and 64-79, Dharmappa further discloses micro- and ultra-filtration , different filtration shapes and forms, and widely varying types of filtration processes concerning different sources of waste-water and industrial fluids being purified. See introduction at page 173

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For claims 26-29, 39 and 64-79, Romero further discloses micro- and ultra-filtration , different filtration shapes and forms, and widely varying types of filtration processes concerning different sources of waste-water and industrial fluids being purified. See Introduction at page 157

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Drodge at his direct government telephone number of 571-272-1140. The examiner can normally be reached on Monday-Friday from approximately 8:30 AM to 12:30 PM and 2:00 PM to 6:00 PM.

Alternatively, to contact the examiner, send a communication via E-mail communication to the Examiner's Patent Office E-mail address: "Joseph.Drodge@uspto.gov". Such E-mail communication should be in accordance with provisions of MPEP (Manual of Patent Examination Procedures) section 502.03 & related MPEP sections. E-mail communication must begin with a statement authorizing the E-mail communication and acknowledging that such communication is not secure and will be made of record, under Patent Internet Usage Policy Article 5. A suggested format for such authorization is as follows: "Recognizing that Internet communications are not secure, I hereby authorize the USPTO to communicate with me concerning any subject matter of this application by electronic mail. I understand that a copy of these communications will be made of record in the application file.

Additionally, the examiner's supervisor, David Roy Sample, of Technology Center Unit 1797, can be reached at 571-272-1376.

The formal facsimile phone number, for official, formal communications, for the examining group where this application is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either private PAIR or Public PAIR, and through Private PAIR only for unpublished applications. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have any questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JWD

11/4/2008

/Joseph W. Drodge/

Primary Examiner, Art Unit 1797